

SECTION 901 PORTLAND CEMENT CONCRETE

MATERIAL		PURP.	SAMPLED BY	TESTED BY	MIN. FREQ.	MIN. QUANT.	CERT.	SMALL QUANTITY	TYPICAL HANDLING TIME	REMARKS
			METHOD			CONTAINER	DISTR.			
THIS SECTION IS TO BE USED AS A GUIDE FOR OTHER ITEM NUMBERS WHEN REFERENCE IS MADE TO SECTION 901 OF THIS MANUAL. THERE ARE NO PAY ITEMS UNDER SECTION 901.										
ADMIXTURES		Accept.	Proj. Engr. S 601	Mat. Lab	1/type/project	1 pt friction top can	CC 1	----	----	(AML) Visual inspection. Sample only if questionable.
		Verif.	Proj. Engr. S 601	Mat. Lab	1/type/project	1-pt friction-top can	----	30050-yd ³	9 days	(AML) (REMOVING EXCESS SAMPLING - CC FOR ACCEPTANCE, SAMPLE ONLY IF ??)
AGGREGATES (Pavement)	Fine & Coarse	Quality Control	Contractor S 101	Contractor	1/day/plant for moisture 2/day/plant for gradation	1 full sample sack	----	----	----	(AML) Gradation results are plotted on control charts which are required for documentation. See "Application of Quality Assurance Specifications for Portland Cement Concrete Pavement and structures" for details.
		Accept.	Proj. Engr. S 101	Dist. Lab	1/pavement lot* 1 / 5 days production or 400 yd ³ of aggregate **	1 full sample sack	----	50 yd ³	3 days	(AML) Check gradation and foreign matter. *For paving concrete produced from non-dedicated stockpiles. ** For pavement patching when each patch is designated as a pavement lot
		Verif.	Proj. Engr. S 101	Dist. Lab	1/1,000 yd ³ / dedicated stockpile	1 full sample sack	----	----	3 days	(AML) Sample as stockpile is being built.
	Blended Aggregate Type B & D	Quality Control	Contractor S 101	Contractor	1/stockpile/day	1 full sample sack	----	50 yd ³	3 days	(AML) Gradations for each component used to calculate blended gradation based on mix proportions. Report combined gradation of adjacent sieves as required by specifications.
		Verif.	Proj. Engr. S 101	Dist. Lab	1/aggregate-size/lot (max-of-1/agg-size/day) 1 / aggregate size / every 5 days of production	1 full sample sack	----	50 yd ³	3 days	(AML) Verification testing performed by Dist Lab in accordance with 901.6.4
AGGREGATES (Structural and Minor Structural)	Fine & Coarse	Quality Control	Contractor S 101	Contractor	1/lot	1 full sample sack	----	----	----	(AML) Gradation and moisture content to be run. Lot to be identifiable pour up to 200 yd ³ max of concrete. Gradation results shall be plotted on control charts which are required for documentation. See "Application of Quality Assurance Specifications for Portland Cement Concrete Pavement and Structures" for details.
		Accept. (non-dedicated stockpiles)	Proj. Engr. S 101	Dist. Lab	1/every 5 day of production or 400 yd ³ of aggregate*	1 full sample sack	----	50 yd ³	3 days	(AML) Check gradation and foreign matter. *For structural concrete produced from non-dedicated stockpiles.

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		verif. Accept. (dedicated stockpiles)	Proj. Engr. S 101	Dist. Lab	1/1,000 yd ³ / dedicated stockpile	1 full sample sack	-----	50 yd ³	3 days	(AML) Sample as stockpile is being built.
		IA	Dist. Lab S 101	Dist. Lab	SEE INDEPENDENT ASSURANCE PROGRAM S 701.					
	Blended Aggregate Type B & D	Quality Control	Contractor S 101	Contractor	1/stockpile/ day	1 full sample sack	-----	50 yd ³	3 days	(AML) Gradations for each component used to calculate blended gradation based on mix proportions. Report
		Verif.	Proj. Engr. S 101	Dist. Lab	1 / aggregate size / every 5 days of production	1 full sample sack	-----	50 yd ³	3 days	(AML) Verification testing performed by Dist Lab in accordance with 901.6.4
		IA	Dist. Lab S-101	-Dist. Lab	SEE INDEPENDENT ASSURANCE PROGRAM S 701. <u>Remove IA completely from Blended</u>					

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MATERIAL	PURP.	SAMPLED BY	TESTED BY	MIN. FREQ.	MIN. QUANT.	CERT.	SMALL QUANTITY	TYPICAL HANDLING TIME	REMARKS		
		METHOD			CONTAINER	DISTR.					
CEMENT (Hydraulic)	Prelim Source Approval	Mfr. AASHTO T 127	Mat. Lab	1/month	Five - 1 gal friction top cans or acceptable moisture proof container	-----	-----	5 weeks	(AML) Composited and blended from daily plant samples.		
	Accept.	----- Proj. Engr.	Proj. Engr. Mat. Lab	1/shipment	----- 1 gal friction top can	CC 1 & 7	50 yd ³	17-19 days	(AML) Visual inspection by PE. Sample only if questionable.		
	Verif.	Proj. Engr. or Const. Fab. S 102	Mat. Lab	1/600-400 tons/source*	1 gal friction top can	CC** 1 & 7	30050 yd ³	17-19 days	(AML) *Maximum of one sample per day per source unless questionable. **Copy of CC shall be submitted with sample. (change based on AASHTO T 127)		
CONCRETE (Minor Structure)	Compressive Strength	Accept.	Proj. Engr. S 301 TR 226	Dist. Lab	3cyl/50yd ³	6 in. x 12 in. or 4 in. x 8 in. cylinder mold	-----	50 yd ³	30 days	-----	
	Mix Design	Design/ Accept.	*	Contractor/ Dist. Lab	1/mix class or type/material source/plant 1 / type or class / plant	-----	-----	-----	3 days	(AML - Admixtures, AML- Aggregates, AML - Cement, AML Fly Ash and AML Microsilica (Silica Fumes)) *The contractor shall submit to the Dist. Lab Engr. the standard Mix Design form indicating the intended source of all materials and the mix design. Acceptance by the Dist. Lab Engineer is required prior to starting work.	
	Slump and Air	Accept.	Proj. Engr. S 301	Proj. Engr.	1/50 yd ³	0.5 ft ³	-----	50 yd ³	1 day	When required in Table 901-3 or individual section.	
CONCRETE (Pavement)	Entrained Air	Quality Control	Contractor S 301	Contractor	2/half day	0.25 ft ³	-----	-----	-----	Air test results shall be plotted on control charts which are required for documentation.	
		Accept.	Proj. Engr. S 301	Proj. Engr.	1/half day	0.25 ft ³	-----	-----	1 day	-----	
	Mix Design	Design/ Accept.	*	Contractor/Di st. Lab	1/mix class or type/material source/plant 1 / type or class / plant	-----	-----	-----	3 days	*Contractor shall submit to the Dist. Lab Engr. the standard Mix Design form indicating material sources, proportions, and composite gradation calculations. Acceptance by the Dist. Lab Engr. is required prior to starting work.	
	Mix Temperature	Quality Control	Contractor S 301	Contractor	*	-----	-----	-----	-----	*When temperature control is needed, testing must be sufficient to prevent exceeding appropriate limits.	
	Slump	Quality Control	Contractor S 301	Contractor	Contractor	2/half day	0.5 ft ³	-----	-----	-----	Slump test results shall be plotted on control charts which are required for documentation.
		Accept.	Proj. Engr. S 301	Proj. Engr.	Proj. Engr.	1/half day	0.5 ft ³	-----	-----	1 day	-----

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	Unit Weight	Quality Control	Contractor S 301	Contractor	*	1.5ft ³ or 0.5 ft ³ yield bucket	----	----	----	*Unit weight will be run as necessary.
Fibers		Accept.	Proj. Engr.	Mat. Lab	1 / project	1 qt. friction top can	CC 1*	----	----	*Visual inspection by PE. Sample only if questionable.

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		METHOD			CONTAINER	DISTR.					
CONCRETE (Structural)	Entrained Air	Quality Control	Contractor S 301	Contractor	2/lot	0.25 ft ³	-----	-----	-----	Air test results shall be plotted on control charts which are required for documentation.	
		Accept.	Proj. Engr. S 301	Proj. Engr.	1/lot	0.25 ft ³	-----	-----	1 day	When pump placement is used, see "Application of Quality Assurance Specifications for Portland Cement Concrete Pavement and Structures" for details.	
		IA	Dist. Lab S 301	Dist. Lab	SEE INDEPENDENT ASSURANCE PROGRAM S 701.						
	Compressive Strength & Surface Resistivity	Accept.	Proj. Engr. S 301 TR 226 & TR 233	Dist. Lab	3 cyl/batch 2 batches/lot *	cylinder molds	-----	-----	30 days	A lot is an identifiable pour not to exceed 200 yd ³ . For specific details see Specification Subsection 805.10. * If used for curbs only, frequency is 3 cyl / 50 yd ³ .	
		IA	Dist. Lab S 301	Dist. Lab	SEE INDEPENDENCE ASSURANCE PROGRAM S 701.						
	Mix Design	Design/ Accept.	*	Contractor/ Dist. Lab	1/mix class/material source/plant	-----	-----	-----	3 days	*Contractor shall submit to the Dist. Lab Engr. the standard Mix Design form indicating the intended source of all materials and the mix design. Acceptance by the Dist. Lab Engineer is required prior to starting work.	
	Mix Temperature	Quality Control	Contractor S 301	Contractor	*	-----	-----	-----	-----	*When temperature control is required, testing must be sufficient to prevent exceeding appropriate limits.	
	Slump	Quality Control	Contractor S 301	Contractor	2/lot	0.5 ft ³	-----	-----	-----	-----	Slump test results shall be plotted on control charts which are required for documentation.
		Accept.	Proj. Engr. S 301	Table 901-3 Proj. Engr.	1/lot	0.5 ft ³	-----	-----	1 day	When pump placement is used, see "Application of Quality Assurance Specifications for Portland Cement Concrete Pavement and Structures" for details.	
		IA	Dist. Lab S 301	Table 901-3 Dist. Lab	SEE INDEPENDENCE ASSURANCE PROGRAM S 701.						
Unit Weight	Quality Control	Contractor S 301	Contractor	*	1.5 ft ³ 0.5 or 1 ft ³ yield bucket	-----	-----	-----	*Unit weight will be run as necessary.		

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			METHOD			CONTAINER	DISTR.			
FLY ASH	Cement Replacement	Prelim. Source Approval	Mfr. S 102	Mat. Lab	1/month	Five - 1 gal friction top cans or acceptable moisture proof containers	----	----	10 weeks	(AML)
		Accept.	----- Proj. Engr.	Proj. Engr. Mat. Lab	1/shipment	-----	CC 1-&7	50 yd ³	-----	(AML) Visual inspection by PE. Sample only if questionable.
		Verif.	Proj. Engr. or Const. Fab. S 102	Mat. Lab	1/200 tons/source	1 gal friction top can	CC* 1 & 7	50 yd ³	17-19 days	(AML) *Copy of CC shall be submitted with sample
GROUND GRANULATED BLAST-FURNACE SLAG	Cement Replacement	Prelim. Source Approval	Mfr. S 102	Mat. Lab	1/month	Five - 1 gal friction top cans	CC 1-&7	----	17 days	(AML)
		Accept.	-----	Proj. Engr.	1/shipment	-----	CC 1-&7	50 yd ³	----- 32 days	(AML) Visual inspection by PE. Sample only if questionable.
		Verif.	Proj. Engr. S 102	Mat. Lab	1/200 tons/source	1 gal friction top can	CC 1-&7	30050 yd ³	17-32 days	(AML) *Copy of CC shall be submitted with sample.
WATER		Accept.	Proj. Engr. S 301	Mat. Lab	1/source	1 qt plastic bottle	----	50 yd ³	11 days	Potable water need not be sampled.

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